MARSHALL STAR

Marshall Space Flight Center — March 16, 2000

"We bring people to space — We bring space to people"

Administrator praises work of review teams

NASA Administrator Dan Goldin last Monday praised the work of two panels reporting on NASA project management issues, noting that the teams "have done a great service to the Agency and to the nation."

The Phase II report by the Mars Climate Orbiter Mishap Investigation Board, led by Marshall Center Director Art Stephenson, and the Faster, Better, Cheaper report by former Jet Propulsion Laboratory project manager Anthony Spear, are part of a top-to-bottom review of Agency programs Goldin chartered within the past few months.

The two reports released Monday join the work of another review panel, the Shuttle Independent Assessment Team, led by Ames Research Center Director Dr. Henry McDonald, which looked into Space Shuttle processing issues. That report was released March 9.

An additional review, by a team under former Lockheed Martin executive Thomas Young, is due to NASA this week, and after a short period of study will be publicly released later this month.

*See **Reports** on page 7*

Photo by Emmett Given, NASA/Marshall Space Flight Center

'NASA Goes to the Stars'

Jim Riley, left, director of public relations for the Huntsville Stars, presents the first ticket for the NASA Exchange buyout night on April 6. Receiving the ticket are beginning at second from left, Tereasa Washington, director of the Customer and Employee Relations Directorate; Axel Roth, director of the Flight Projects Directorate and president of the NASA Exchange board; and Center Director Art Stephenson. Tickets are available from administrative officers and the NASA Exchange.

Flown on historic Glenn Shuttle mission

Findings of microgravity experiments revealed

by Tracy McMahan

People on Earth will benefit from numerous microgravity experiments conducted during Sen. John Glenn's historic return to space aboard the Space Shuttle Discovery in October 1998.

After a year's analysis of data collected during the STS-95 flight, scientists reported the mission's microgravity experiments are contributing information to such diverse fields as medicine, agriculture and manufacturing. The Marshall Center managed the investigations. Marshall is NASA's Lead Center for microgravity research.

During the mission, Glenn — the subject of various life science experiments on the aging process — worked as a payload specialist, or scientist in orbit. In microgravity — the near-weightlessness of space — he and other crewmembers activated and monitored experiments aimed at improving life on Earth.

Glenn worked with several experiments that may help improve treatments for life-threatening diseases. One result: treating solid tumors may become more effective using drugs enclosed in liquid-filled microcapsules that can be injected into arteries leading directly to the tumor. A new microencapsulation electrostatic processing system using microballoons was tested in space, and results are being used to refine the manufacturing process on Earth.

A biopharmaceutical company that is testing advanced cell separation technologies is evaluating STS-95 results from another commercial experiment. These technologies could be used to produce hemoglobin products to replace whole human blood in transfusions.

High-quality protein crystals were produced during the closely watched flight, and scientists obtained the best data ever collected on human recombinant insulin crystals. Using the crystal data, scientists can model the structure of this type of insulin more accurately, and pharmaceutical companies may be able to use the structural data to improve insulin treatments used to control diabetes. Other protein crystals grown during the mission could help pharmaceutical companies learn more about how to treat AIDS and Chagas' disease — a deadly parasitic disease that primarily

*See **Microgravity** on page 4*

"Safety? Safe! Me!"
— Safety slogan submitted by
Kelly Carter, RSSC

For Women's History Month

'Lunch and learn' to be held March 27

Dr. Emily Walker Cook will present a Women's History Month "lunch and learn" session from 11 a.m.-12:30 p.m. March 27 in Bldg. 4200, room G-13. Pizza and drink will be furnished.

Cook will discuss perspectives in women's history. For example, if the 1950s is looked at from a traditional perspective, you see economic prosperity and increasing opportunity. Taken from a women's perspective, you see lessening job opportunity and displacement from good jobs held during World War II. And if looked at them from an African-American perspective, you see the beginning of a social movement that would change everything.

Cook received a doctorate in history from Vanderbilt University in Nashville, Tenn., in 1995 with emphasis on women and public policy. She has written numerous publications and lectured at conferences and universities. She is currently working on a book, "A Pivotal Decade: Women's Rights and the Presidency, 1972-1982."

For more information, call Billie Swinford at 544-0087.

Photo by Emmett Given, NASA/Marshall Space Flight Center

Working safely

Dan Moore, left, security and safety manager; David White, center, program manager; and David Jones, safety specialist; receive Director's Commendations. They were recognized for managing the Program Information Systems Mission Services (PRiSMS) contract for 13 months and more than 2.5 million hours without a lost-time accident.

Obituaries

Davis, Ernestine M. Langford, 52, of Madison, died March 10. At the time of her death, she worked as a contract specialist in the Procurement Office. She is survived by her daughters, Acacia Langford of Poughkeepsie, N.Y.; Monica Grant of New Windsor, N.Y.; and Rosalynn Langford of Jacksonville, Fla.

Bubke, William T., 79, of Huntsville, died March 3. He retired from Marshall in 1992 where he worked as a program analyst. He is survived by his wife, Laurice Bubke.

Women's History Month grew from small group to national observance

In 1978, a small group in Sonoma County, Calif., decided to address the situation of women's history being virtually unknown. This group chose March 8 as International Women's Day and the focal point of their activities and observances. This one-day celebration evolved into the monthlong observation in place today.

In 1979, a member from this group was invited to participate in Women's History Institutes at Sarah Lawrence College in Bronxville, N.Y. From that meeting, many women came away with a renewed spirit to win a congressional resolution declaring a "National Women's History Week."

In 1981, U.S. Sen. Orin Hatch of Utah and Rep. Barbara Mikulski of Maryland co-sponsored the first-ever Joint Congressional Resolution.

In 1987, the National Women's History Project petitioned Congress to expand the national celebration to the entire month of March. The National Women's History Month Resolution since then was approved with bipartisan support in both the House and Senate establishing March as Women's History Month each year.

Associate director shares results of ISO 9001 audit

Again Marshall has risen to the occasion! National Quality Assurance, has recommended Marshall for continued Registration to ISO 9001.

The findings of the audit were as follows:

- Major Non-Conformances: 0
- Minor Non-Conformances: 2
- Observations: 2
- Carryovers (from the last surveillances): 0

I would like to commend and thank each of you who supported this highly successful effort that contributed to Marshall maintaining its ISO 9001 registration. Needless to say, registration to ISO 9001 is very important to our Center. Each of you did an outstanding job in the preparation for the audit and those who were interviewed are to be commended. To maintain our registration and meet our NASA goal, NQA will return in August for the next surveillance audit and every six months thereafter.

In August, we will have the pre-assessment for the full scope registration along with our regular surveillance audit to our present scope. Our goal is to be fully registered to ISO 9001 in November. I look forward to working with you to meet this goal, and I am confident that Marshall will meet this challenge as we have done in the past.

Again, thank you for your outstanding effort.

—Sidney P. Saucier
Marshall Center Associate Director

XRS-2200 linear aerospike engine tested at Stennis

The 10th of 14 planned single-engine tests of the linear aerospike engine for the X-33 Advanced Technology Demonstrator was conducted at the Stennis Space Center in Bay St. Louis, Miss., March 9.

The Marshall Center manages the X-33 program for NASA.

The test ran approximately 75 of a planned 220 seconds. Early shutdown was attributed to a change in the engine's controlling software. Initial inspections have revealed no significant damage to the engine or supporting equipment, and the next test is slated in about a week.

Shut-down of the engine, at 75.44 seconds, was attributed to missing a qualification limit on fuel pump discharge pressure in new mixture ratio control software during the first attempt at a 30 percent per second throttling rate from 100 percent to 72 percent power level. The previous nine tests have gone full duration.

Objectives planned for the first 75 seconds of the test were all met including throttle rate, thrust vector control, power level and mixture ratio. The next test will repeat parts of this test to pick up the remaining objectives.

The XRS-2200 engine was developed and assembled by Boeing Rocketdyne Propulsion and Power in Canoga Park, Calif. The engine will power the X-33, a half-scale, sub-orbital technology demonstrator of Lockheed Martin's proposed, commercial reusable launch vehicle called VentureStar™.

The X-33 is being developed in partnership with NASA and Lockheed Martin Aeronautics Company in Palmdale, Calif.

Mandatory property training available during March

Government employees and contractors are responsible for government equipment used to do their jobs. In these days of decreasing budgets, the need to prevent loss of, or damage to government equipment is critical.

"Unfortunately, the property loss rates at both Marshall and NASA have increased dramatically over the last several years," said Roy Malone, manager of the Logistics Services Department. "Reversing this trend will require the help of every employee at Marshall."

Marshall employees can make a major difference by following several simple rules:

- Ensure all equipment, tagged or not tagged, is used only for official government purposes.
- Treat government property as you would your own property.
- Notify property support assistants of any changes to assigned/tagged property.
- Turn in equipment, tagged or not tagged, not actively used through the property support assistant.
- Immediately notify Marshall's Protective Services Department if theft is suspected or within three days of discovering equipment is missing. Reporting is required, regardless of whether the equipment is tagged or not.

Additional property-related information is provided in the mandatory Web-based property training, which is taking place during March.

The training site can be found on "Inside Marshall" at: http://eodd.msfc.nasa.gov/property/

For personnel who do not have access to a computer, training sessions will be at 2-3 p.m. March 22 in Bldg. 4200, room 509, and March 29 in Bldg. 4200, room 409.

Upcoming Events

Fireside Chat — The Marshall Retirees' Association will host the second in a series of talks recalling Huntsville's role in defense and space at 7 p.m. Thursday at the University of Alabama in Huntsville Student Union Building. The event is free and open to the public. The March presentation is "The Army Years: 1950-1960."

Program/Project Management — A Program/Project Management Forum will be from 1-3 p.m. March 29 in Morris Auditorium. Program and project managers are invited to attend, as well as all employees. Center Director Art Stephenson will discuss the report of the Mars Climate Orbiter Investigation Team and the implications for program and project managers.

Parts Management Workshop — "Mission Success on the Information Highway" will be April 4-5 in Bldg. 4200, Morris Auditorium and Bldg. 4203, room 1201. Anyone involved in parts specification, evaluation, procurement, analysis, or maintenance is encouraged to participate. The workshop provides a forum for assessing parts information tools, processes and techniques for the safety, readiness, sustainability and availability of space and weapons systems. For more information or registration, call Sandy Haraway at 544-4264 or visit the workshop's Web site at: http://smaplab.ri.uah.edu/SFH

Data Management Workshop — Ames Research Center and Oracle Corp. will sponsor a data management workshop from 7:30 a.m.-5 p.m. April 18-19 at the Oracle Headquarters in Redwood Shores, Calif. It is open to all NASA employees and support service contractors. The workshop will instruct NASA and contractor project managers and researchers about a wide range of commercial, off-the-shelf database systems. To register online, go to: http://ace.arc.nasa.gov/postdoc/t/group/members.ehtml?group_id=-759

Marshall team develops new welding technique

by Jeff Ding and Miria Finckenor

The Materials, Processes and Manufacturing Department is working with Lockheed-Martin Corp., The Boeing Co. and Sverdrup Technology Inc., at Marshall to develop friction stir welding techniques for use on the Space Shuttle External Tank and other NASA hardware.

Engineers at Marshall have received two patents for their innovations in this field and continue to develop friction stir welding processes for aluminum alloys. The latest developments are the ability to weld 1-inch thick aluminum, a sensor to monitor the force during the welding process and improved inspection for flaws.

Friction stir welding, first developed at The Welding Institute of Cambridge, United Kingdom, in the mid-1980s, uses a rotating pin tool to crush, stir and forge a bond between two metal plates.

Because this does not melt the material as fusion-welding techniques do, the weld has excellent mechanical properties and exhibits very little shrinkage or distortion, even in long welds.

Friction stir welding makes it possible to weld metals previously considered unweldable. No shielding gas or filler metal is required for this process. Reliability is excellent, as the only variables are pin penetration, rotation speed and welding speed.

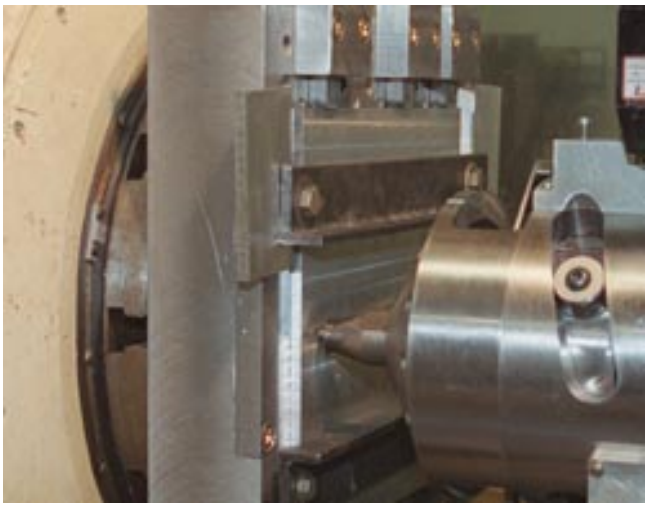


Photo by Terry Leibold, NASA/Marshall Space Flight Center

Friction stir welding with the manually retractable pin tool patented by engineers at Marshall.

Jeff Ding of the Metallic Materials and Processes Group, and Peter Oelgoetz of Boeing, have patented two pin tool designs.

The previous design for friction stir welding pin tools required a tool change for as little as 0.005-inch difference in metal thickness. The new manually adjustable pin tool can be used to weld different thicknesses by adjusting it with a wrench. The second patent is for an automated version of the pin tool that uses a computer-controlled motor to adjust pin length during welding. The tool is kept at the proper depth regardless of a material's thickness. This system eliminates the crater or keyhole at the end of a weld.

In addition to the new pin tool designs, Marshall has developed a load sensor integrated into the retractable pin tool that measures the force on the pin during welding. Welding engineers are optimistic they can use this pin force measurement to precisely control the pin extension to attain welds with zero defects.

Friction stir welding can be used to join lightweight aluminum-lithium alloys without altering the chemical composition and with less degradation of strength than usually experienced in conventional fusion welds on aluminum. Microscopic examination of the welds showed good grain structure. Copper and metal matrix composites also have been joined successfully.

The retractable pin tool is being licensed to Nicholson Manufacturing of Seattle, and MTS Systems of Minneapolis for commercial development. The Technology Transfer Department is instrumental in implementing commercialization agreements with industry.

Several military contractors have visited Marshall to consider friction stir welding for tank armor manufacture, and a Department of Energy contractor has witnessed welding here to investigate using this technique for storage canisters of nuclear waste.

As welding techniques improve, so must the inspection methods for flaws. The Nondestructive Evaluation and Tribology Group has contributed to development of a phased array ultrasonic inspection method for friction stir welds. Boeing, Williams International and Lockheed Martin-Michoud are now using this NASA spin-off technology.

For more information on friction stir welding, call Jeff Ding at 544-2700.

Ding, a welding engineer, and Finckenor, a materials engineer, work in the Materials, Processes and Manufacturing Department.

Microgravity

Continued from page 1

attacks cardiac muscle.

A portion of the microgravity experiments flown on STS-95 was funded and developed by commercial companies under NASA's Space Product Development Program, which encourages industry to investigate the commercial potential of space. Several research efforts involved independent, commercial firms. A number of other experiments were developed and flown through NASA's Commercial Space Centers located in regions across the United States. These centers partner with companies to develop products using insight gained from space research.

Investigators reported results from both life and microgravity experiments Jan. 27-28 at the Symposium on the STS-95 research results, sponsored by NASA Headquarters' Office of Life and Microgravity Sciences and Applications and the National Institute on Aging.

More detailed descriptions of the results presented on microgravity experiments can be found at:
http://www1.msfc.nasa.gov/NEWSROOM/background/sts-95.html

The writer, employed by ASRI, supports the Media Relations Department.

Elements for becoming a VPP star site: Management commitment, planning and accountability

Editor's note: This is the second in a series of articles that will address frequently asked questions on the 19 elements in the Voluntary Protection Program (VPP).

Q: How is Marshall management committed to safety and health?

A: Marshall's commitment to safety and health starts at the top. The Center's policy states, "Marshall will strive to prevent human injury and occupational illness to ensure safety of all operations and products." This policy is communicated throughout the Center by posters, electronic media and in safety meetings. The Marshall Implementation Plan details the Center's commitment by stressing the principals of safety which include:

- Unsafe conditions are correctable.
- All mishaps can be prevented.
- Management is responsible and accountable for prevention of on-the-job mishaps (incidents, close calls, etc.).
- All mishaps must be reported, investigated and the causes rectified.
- Management is responsible for training employees to work safely.
- Each employee is responsible for safety.
- Off-duty safety is an important part of Marshall's safety success.
- A comprehensive safety and risk management program increases the probability of mission success.

Q: How do we plan for safety and health?

A: Marshall has established an organization structure to implement the Safety and Health Program that includes all levels of management and employees. The Safety, Health and Environmental central committee, chaired by the Center director, establishes policy and ensures the line organizations implement the policy. The Area Safety, Health and Environmental committee is co-chaired by the directors of the Safety and Mission Assurance Office, Center Operations Directorate and Customer and Employee Relations Directorate. It allows Center management to discuss policy and mutual safety and health problems. The contractor forum and the safety action team allow contractors and employees a forum for discussing safety and health concerns and suggestions. The Customer and Employee Relations Directorate performs daily operations of the individual elements of safety and health such as training, communications and employee assistance. Safety and Mission Assurance oversees industrial safety, workman's compensation and mission assurance. The Center Operations Directorate provides protective services, facility maintenance, emergency operations, occupational health, medical, environmental engineering and physical fitness programs. Each directorate is encouraged to implement directorate level safety and health goals. Safety and health also are incorporated in projects at all phases with system safety. Facilities' planning provides dollars for resolving safety problems.

Q: How are we held accountable for safety and health?

A: Working safely is considered a condition of employment at Marshall. All civil service and contractor employees are responsible for their own safety and that of their coworkers. Management is held accountable for maintaining a safe workplace through the annual performance appraisal system. Helpful hints for evaluating safety performance are posted on the Marshall Safety Web site at:
http:msfcsma3.msfc,nasa.gov/

Employee performance plans hold employees responsible for demonstrating safe work habits, reporting incidents or unsafe acts/conditions to supervisors and participating in safety audits as required. Bad or negligent safety performance can and will be disciplined in the same manner as will other performance deficiencies. Future articles will discuss safety audits, mishap and hazard reporting, the disciplinary program and contractor safety.

For more information, contact your management, Kristie French at 544-7474 or Jimmy Hill at 544-0974.

Job Opportunities

CPP 00-47-JB, Executive Support Assistant (OA), GS-303-09, Office of the Associate Director. Closes March 21.
CPP 00-46-EB, Supervisory, AST, Data Systems, GS-854-15, Engineering Directorate, Avionics Dept., Flight Software Group. Closes March 22.
CPP 00-45-EB, Supervisory, AST, Data Systems, GS-854-15, Engineering Directorate, Avionics Dept., Computers and Data Systems Group. Closes March 22.
Reassignment Bulletin, AST, Aerospace Flight Systems, GS-861-14, Flight Projects Directorate, Payload Operations and Integration Dept., Multi-Use Payload Group. Closes March 29.

Alabama Space Week

Marshall employees visit local schools

Alabama Space Week was held Feb. 27 to March 10 with local schools participating. The Education Programs Department provided volunteers to the schools for presentations and hands-on activities to students and teachers in kindergarten through middle school.

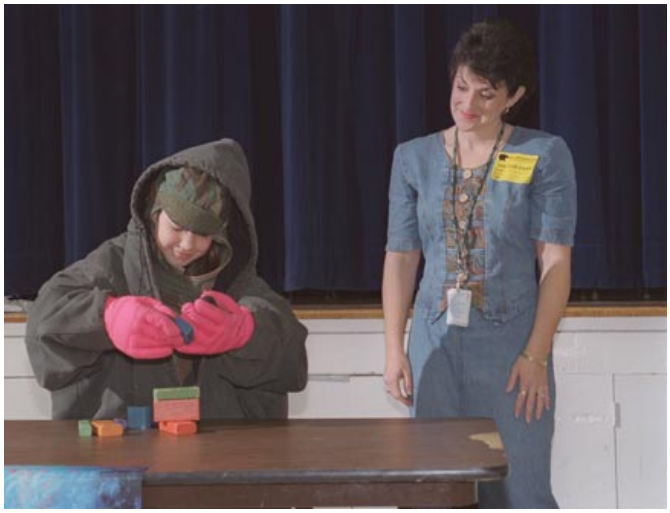
Photos by Dennis Olive, NASA/Marshall Space Flight Center

Roy Young with Marshall's Science Directorate talks about space suits worn by astronauts at Hermitage Elementary School during Space Week.

Dr. Robert Mog with Marshall's Applications Supporting Systems Engineering Office speaks to Chaffee Elementary School students about space propulsion.

Jan Davis, deputy director of Marshall's Flight Projects Directorate, shares her experiences as a Shuttle astronaut with students at Ridgecrest Elementary School.

Billy Hix with Marshall's Education Programs Department talks to students at Chaffee Elementary School.



Tammy Rowan of Marshall's Education Programs Department uses a student at Blossomwood Elementary School to demonstrate how awkward it is to perform simple tasks in space.

Photo by Danny Reeves, NASA/Marshall Space Flight Center

Robyn Carrasquillo with Marshall's Flight Systems Department shows students at West Madison Middle School how food is packaged for astronauts.

Photo by Emmett Given, NASA/Marshall Space Flight Center

For distinguished service

Marshall's Associate Director Sid Saucier, right, receives NASA's Distinguished Service Medal from Joseph Rothenberg, associate administrator for space flight, on March 9. Saucier serves as a key adviser for institutional matters and technical issues. During his more than 35 years of service in propulsion engineering assignments, his accomplishments include development of propulsion stages capable of reaching planetary orbit, and development and demonstration of advanced propulsion technologies aimed at reducing the cost of space transportation.

Reports

Continued from page 1

"These teams have performed magnificently," Goldin said. "They have zeroed in on problem areas and have provided a roadmap for improving our performance in the future. The American people have said loud and clear they desire a government which costs less and does more. NASA has heard that message and embarked on a fundamental cultural change over the last several years.

"We knew this change would not be easy. We knew we would have problems," Goldin said. "We pushed, we monitored and we initiated these reviews to find the areas which need correction.

"These reviews make clear there is no turning back from our overall goal and have identified where we can and must do better."

Goldin has asked NASA Chief Engineer W. Brian Keegan to lead an internal group of experts in considering the reports as a whole and developing an integrated set of responses. "I have asked the chief engineer to work with the heads of each of the major NASA Enterprises and the NASA field centers to develop an across-the-board approach to implementing these recommendations. Specific actions will be defined by mid-summer," Goldin said.

Among the report findings, Goldin noted the following:

• The Shuttle Independent Assessment Team documented 81 recommendations set against four time frames: immediate, short-term, intermediate and long-term. "We have already implemented the immediate recommendations," Goldin said. "I have asked Joe Rothenberg (associate administrator for space flight) to prepare a plan for implementing the other recommendations. We are adding a significant number of people to the program, but we're not going to stop there. This report raises very significant technical and management issues, some going back to the origins of the program. We are systematically working on each of the issues, and this report has given us 20-20 vision. In the meantime, we must guard against the notion that simply adding more people to the Shuttle program will solve all of our problems. As Harry McDonald's team has noted, our challenge is more complex than simple addition. It will involve augmenting an already highly accomplished team with new skills, the right skills, more training and more discipline. Because Harry's team and the Shuttle program had the courage to tackle these difficult issues, NASA will be better and the Shuttle will be safer."

• The Mars Climate Orbiter Mishap Investigation Board provided a comprehensive project management strategy — "Mission Success First" — for improving the likelihood of mission success in every NASA endeavor. "This represents a fourth element of the Faster, Better, Cheaper approach," Goldin said, "and that is, doing our work smarter. It means picking the right people, giving them the right resources, infusing the right technology, holding the right people accountable and doing the right kind of risk management."

• The Faster, Better, Cheaper Report, a set of personal observations by Spear, "adds a wonderful dimension to these reviews," Goldin said. "Tony Spear was a legendary project manager at the Jet Propulsion Laboratory and helped make Mars Pathfinder the riveting success that it was. If we could bottle his experience, we would do so — this report is the next best thing."

Goldin said copies of all the reports will be provided to NASA managers to share with their employees to help incorporate the lessons learned into NASA management practices. The reports also are available on the NASA Home page at: www.nasa.gov

Employee Ads

Miscellaneous

★ Large walnut coffee table w/two matching end tables by Broyhill, $150. 971-1437
★ 1964 U.S. mint set (10 coins); WWII silver nickel set; 1943 steel cent set; in holders. 883-5114
★ JVC VHS camcorder, car charger, leather case, $275; video rocker, new, $25. 650-5375
★ Pool table, regulation size, w/all accessories, $175; workshop/repair manual, Haynes, Dodge Dakota, 1987-1996, $5. 837-6109
★ 1995 Starcraft pop-up camper, canopy, a/c, extras, sleeps five, $2,700. 881-2355
★ Snapper self-propelled lawn mower, 4HP, Briggs & Stratton engine, $150. 739-6388
★ Complete computer system, 486, 1GB hard-drive, 10-speed CD-ROM, sound card, 14" monitor, $125. 828-6213
★ Casio keyboards, CT-647, $85; Raleigh 10-speed women's bike, $25; luggage pieces, price negotiable. 533-5942
★ Craftsman 8-1/4 radial arm saw and stand $150 obo. 880-7305
★ New Permacast half column, 10"x10' w/cap and base, Doric smooth style, $100. 737-7246
★ Tiller, MTD, rear tine, 5HP, used twice; $500. 586-7424
★ Jaz drive w/cable and disk, 1GB capacity, $110. 230-0068
★ Black lacquer waterbed, king size, mirror headboard, 3 yrs. old, $150. 858-8074
★ Craftsman lawn mower, 5HP, mulcher, bagger, power propelled, $75. 883-6284
★ Microwave, white, $75. 895-6490
★ Alvarez 5-string banjo w/hard shell case, $400. 971-1969
★ Color TV, 3 yrs. old, $40; stereo w/CD, cassette & radio, $15. 533-3912
★ Bristol race tickets, one pair for both races (Spring), $200. 830-1403

Vehicles

★ 1992 Jeep Cherokee Laredo, 4WD, AT, all power, a/c, tape deck, deep green, $6,100. 353-3229
★ 1994 Jeep Grand Cherokee Laredo, 4WD, 88,600 miles, 6 cyl, auto, $10,600. 882-5165
★ 1993 Chevy Cavalier station wagon, red, ABS, air, power locks, 108K miles, $3,300 obo. 533-3912
★ 1997 Altima 4-door, automatic, approx. 65K miles, will sell for payoff, $12,500. 971-1754
★ 1989 Mazda, 2K miles on engine, $3,000; 6.5HP high wheel Sears mower, $130. 961-4574
★ 1992 Dodge Grand Caravan LE, 103K miles, dark blue, V-6, $7,200. 881-6388 after 4 p.m.
★ 1997 Saturn SC2, automatic, power sunroof, CD, silver, black leather, 47K miles, $9,700. 880-9025
★ 1996 Mazda MPV, burgundy, 30K miles, AM/FM cassette, power windows/locks; $10,995. 882-7054
★ 1995 Buick LeSabre Limited, beige metallic, 63K miles, $12,400. 539-3858
★ 1977 Porsche 924, silver w/black interior, 4-speed, sunroof, 136K miles, some spare parts, $2,000 obo. 828-6213
★ 1996 Mazda 626 LX, V-6, 60K miles, 25 mpg, white 5-speed, full power, $10,250. 574-5098
★ 1981 Honda Prelude, silver, 180K miles, needs carburetor work, $295. 881-1449
★ 1975 Ford, currie-blue, motor rebuilt, new tires, $800. 723-2395
★ 1999 Explorer Scout, 2WD, white, CD, auto, 40K miles. $19,900. 828-9861

Wanted

★ Old copies of RC Modeler, Model Builder or Model Airplane News to copy plans. 880-7118
★ Small outboard motor, 5-10HP, long shaft preferred. 534-8961
★ 1994-1997 Honda Accord, Toyota Camry, or Mazda 626, one owner, low to average mileage, automatic. 883-2757

Found

★ Eye glasses, Bldg. 4200 lobby. Call 544-4758 to identify
★ Briefcase, Bldg. 4203 lobby. Call 544-4758 to identify
★ Sunglasses on top of ATM machine, Bldg. 4203. 544-3037
★ Bracelet in lobby of Bldg. 4200. Call 544-7686 to identify

Free

★ Double-paned sliding glass door and frame. 883-2653

Carpool

★ From Ardmore (or close-by) to Bldg. 4200 area, 7 a.m.-3:30 p.m. 461-8369

Center Announcements

☛ ***Great Moonbuggy Race* —** Volunteers are needed for the Great Moonbuggy Race being held April 7-8 at the U.S. Space & Rocket Center. Positions include obstacle judging, scorekeeping, start/finish line activities and qualifying. A T-shirt and lunch will be provided to each volunteer. To volunteer, call Dan Ellis at 544-2319.

☛ ***Space & Rocket Center 30th Anniversary* —** The U.S. Space & Rocket Center will kickoff a yearlong celebration of its 30th anniversary with 30 percent off ticket prices March 18 and 19. The price includes a ticket to the Spacedome Theater, but if you want to see "Everest," it will cost $1.50 more. Selected gift merchandise will be on sale at 30 percent off for the weekend, and the Galaxy Food Court will serve featured specials. For more information, call 837-3400.

☛ ***Annual Retiree Dinner* —** The 2000 Retirement Dinner has been scheduled for June 22 at the Von Braun Center.

☛ ***Fitness Instructors Needed* —** Certified Fitness Instructors with experience in group exercise instruction are needed for the Marshall NASA Exchange physical exercise program. Class hours are 4 and 5 p.m. For more information, call Pat Mirandy at 544-7570 or Mike Clark at 544-3337.

☛ ***Employee Assistance Program* —** Employee Assistance Program services are available for after duty hours and weekends. This professional counseling service will assist those calling through a crisis event and will offer assistance on other issues. The phone number to call for this assistance after work hours and weekends is: 1-888-438-3115. The Depression Screening hotline continues throughout the year. This is a NASA sponsored, confidential phone call, and can be accessed at 1-800-449-8605.

☛ ***MOO Meets* —** The Management Operations Office (MOO) retirees will meet for breakfast/lunch at 10 a.m. on March 23 at the Cracker Barrel Restaurant in Madison. For more information, call 539-0042.

☛ ***MESA Meets* —** Marshall Engineers and Scientists Association (MESA) will meet at 11:30 a.m. March 23 in Bldg. 4471, room C-105. Refreshments will be served.

☛ ***NARFE Meets* —** The National Association of Retired Federal Employees (NARFE)-Decatur/Morgan County Chapter 736 will meet at 11 a.m., March 22 at Picadilly's in Decatur. Retired federal employees are welcome to attend. For more information, call Marty Eddy at 773-4826.

MARSHALL STAR
Vol. 40/No. 27

Marshall Space Flight Center, Alabama 35812
(256) 544-0030
http://www1.msfc.nasa.gov

The Marshall Star is published every Thursday by the Internal Relations and Communications Department at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Contributions should be submitted no later than Monday noon to the Marshall Internal Relations and Communications Department (CD40), Bldg. 4200, room 101. Submissions should be written legibly and include the originator's name. Send electronic mail submissions to: intercom@msfc.nasa.gov The Marshall Star does not publish commercial advertising of any kind.

Manager of Internal Relations and Communications — Norman Brown
Editor — Debra Valine

U.S. Government Printing Office 1999-533-127-80102

BULK RATE
Postage & Fees PAID
NASA
Permit No. G-27